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In the Claims

Please cancel claims 6, 11, 18 and 24 and 25, amend claims 1, 2, 4, 5, 7, 8, 10, 13, 16, 17, 19, 21, 26 and 27 and add claims 28-30 as follows.

- 1 1. (Currently Amended) An apparatus for delivering a plurality of chemical  
 2 vapor deposition fluids to a ~~chemical vapor deposition chamber~~, comprising:  
 3 a chemical vapor deposition chamber having a cavity comprising an inlet  
 4 nozzle, a throat region and an exit nozzle,  
 5 said an-inlet nozzle having a first diameter adapted to receive a carrier fluid,  
 6 and ~~configured to maintain~~ having a first pressure and a first  
 7 temperature;  
 8 said a-throat region, having a first and second end, connected to said inlet  
 9 nozzle at said first end, said throat region having a second diameter less  
 10 than said first diameter and adapted to receive said carrier fluid from  
 11 said inlet nozzle, said throat region ~~configured to maintain~~ having a  
 12 second pressure lower than said first pressure and a second temperature,  
 13 and having at least a first and a second aperture adjacent to said first and  
 14 second ends for injecting, respectively, a first and a second chemical  
 15 vapor deposition dopant fluid into said throat region to allow for  
 16 atomization of said first and second chemical vapor deposition dopants  
 17 fluid by said carrier fluid and mixing of said atomized first and second  
 18 chemical vapor deposition dopants fluid with said carrier fluid; and,  
 19 said an-exit nozzle, connected to said throat region at said second end,  
 20 having an exit pressure lower than said second pressure and a third

21     temperature, said exit nozzle having a third diameter greater than said  
 22     second diameter to allow for a substantial decrease in pressure from said  
 23     first pressure to said exit pressure, configured to maintain said exit  
 24     pressure and a third temperature for said atomized first chemical vapor  
 25     deposition fluid and said carrier fluid, and configured to introduce said  
 26     mixed atomized first and second chemical vapor deposition dopants  
 27     fluid and said carrier fluid in the chemical vapor deposition chamber.

1     2.     (Currently Amended) The apparatus of claim 1 wherein said inlet nozzle  
 2     having said first diameter is adapted to receive and funnel said carrier fluid to  
 3     said throat region having said second diameter, said inlet nozzle narrowing at  
 4     an angle in the range of forty to sixty degrees.

1     3.     (Previously Amended) The apparatus of claim 1 wherein said throat  
 2     region is configured to operate at a critical Mach number of 1.0.

1     4.     (Currently Amended) The apparatus of claim 1 wherein said second  
 2     pressure and said second temperature are selected to present a condition for  
 3     atomization of said first and second chemical vapor deposition dopantsfluid.

1     5.     (Currently Amended) The apparatus of claim 1 wherein said first and  
 2     second chemical vapor deposition fluid dopants comprise TEOS~~comprises a~~  
 3     ~~precursor.~~

1 6. (Canceled.)

1 7. (Currently Amended) The apparatus of claim 1 wherein said throat region  
2 is configured to maintain said first pressure to be greater than said third pressure  
3 to enhance atomization of said first and second chemical vapor deposition  
4 ~~fluid~~dopants.

1 8. (Currently Amended) The apparatus of claim 1 wherein said throat  
2 region is adapted such that said second pressure is lower than said first pressure  
3 allowing for said first and second chemical vapor deposition ~~fluid~~dopants to be  
4 injected into said throat region.


29  
1 9. (Previously Amended) The apparatus of claim 1 wherein said inlet  
2 nozzle is adapted to receive said carrier fluid at a constant flow rate ensuring  
3 said second pressure being maintained constant through said throat region.

1 10. (Currently Amended) The apparatus of claim 6~~1~~ wherein said first and  
2 second chemical vapor deposition ~~fluids~~dopants are introduced simultaneously  
3 into said throat region without pre-mixing.

1 11. (Canceled.).

1 12. (Previously Amended) The apparatus of claim 1 wherein said exit nozzle  
2 expands to said third diameter from said throat region second diameter at an  
3 angle in the range of twenty to forty degrees.

1 13. (Currently Amended) An apparatus for delivering a plurality of chemical  
2 vapor deposition fluids to a chemical vapor deposition chamber comprising:  
3 a chemical vapor deposition chamber having a cavity comprising an inlet  
4 nozzle, a throat region and an exit nozzle,  
5 said an-inlet nozzle having a first diameter adapted to receive a carrier fluid,  
6 and ~~configured to maintain~~ having a first pressure and a first temperature,  
7 said carrier fluid comprising a process compatible gas selected from the  
8 group consisting of O<sub>2</sub>, N<sub>2</sub>, and He;  
9 said a-throat region, having a first and second end, connected to said inlet  
10 nozzle at said first end, said throat region having a second diameter less  
11 than said first diameter, and adapted to receive said carrier fluid from  
12 said inlet nozzle, said throat region ~~having configured to maintain a~~  
13 second pressure and a second temperature and having at least a first and  
14 a second aperture adjacent to said first and second ends for injecting,  
15 respectively, a first and a second chemical vapor deposition fluid into  
16 said throat region to allow for atomization of said first and second  
17 chemical vapor deposition fluid by said carrier fluid and mixing of said  
18 atomized first and second chemical vapor deposition fluid with said  
19 carrier fluid, said first and second chemical vapor deposition fluids



20 | comprise fluids selected from the group consisting of precursors and  
21 | dopants; and,  
22 | said an exit nozzle, connected to said throat region at said second end,  
23 | having said second diameter, said exit nozzle configured to maintain  
24 | said second pressure and said second temperature, such that said exit  
25 | nozzle is an extension of said throat region consisting of ~~having~~ the same  
26 | dimensions as said throat region, said exit region configured to  
27 | introduce said atomized first and second chemical vapor deposition  
28 | fluid and said carrier fluid in said chemical vapor deposition chamber.

1 14. (Previously Amended) The apparatus of claim 13 wherein said inlet  
2 nozzle having said first diameter is adapted to receive and funnel said carrier  
3 fluid to said throat region having said second diameter, said inlet nozzle  
4 narrowing at an angle in the range of forty to sixty degrees.

1 15. (Original) The apparatus of claim 13 wherein said throat region is  
2 configured to operate at a critical Mach number of 1.0.

1 16. (Currently Amended) The apparatus of claim 13 wherein said second  
2 pressure and said second temperature are selected to present a condition for  
3 | atomization of said first and second chemical vapor deposition fluid.

1 17. (Currently Amended) The apparatus of claim 13 wherein said first and  
2 second chemical vapor deposition fluids comprises TEOS ~~a precursor~~.

1 18. (Canceled.)

1 19. (Currently Amended) The apparatus of claim 13 wherein said throat  
2 region, having said second diameter, is adapted such that said second pressure  
3 is lower than said first pressure allowing for said first and second chemical  
4 vapor deposition fluid to be injected into said throat region.

1 20. (Previously Amended) The apparatus of claim 13 wherein said inlet  
2 nozzle is adapted to receive said carrier fluid at a constant flow rate ensuring  
3 said second pressure being maintained constant through said throat region.

1 21. (Currently Amended) The apparatus of claim 13 ~~18~~ wherein said first and  
2 second chemical vapor deposition fluids are introduced simultaneously into  
3 said throat region without pre-mixing.

1 22. (Canceled.)

1 23. (Canceled.)

1 24. (Canceled.)

1 25. (Canceled.)

1 26. (Currently Amended) The apparatus of claim 16 wherein said throat  
2 region further comprises ~~at least a~~ third aperture for injecting a third chemical  
3 vapor deposition ~~fluid~~ dopant into said throat region to allow for atomization of  
4 said third chemical vapor deposition ~~fluid~~ dopant by said carrier fluid, and allow  
5 for mixing of said atomized first, second and third chemical vapor deposition  
6 ~~fluids~~ dopants with said carrier fluid.

1 27. (Currently Amended) The apparatus of claim 13 ~~18~~ wherein said throat  
2 region further comprises ~~at least a~~ third aperture for injecting a third chemical  
3 vapor deposition fluid into said throat region to allow for atomization of said  
4 third chemical vapor deposition fluid by said carrier fluid, and allow for mixing  
5 of said atomized first, second and third chemical vapor deposition fluids with  
6 said carrier fluid.

Please add claims 28-30:

1 28. (New) An apparatus for delivering a plurality of chemical vapor  
2 deposition fluids to a chamber, comprising:  
3 a chemical vapor deposition chamber having a cavity comprising a cross-flow  
4 injector, said cross-flow injector comprising an inlet nozzle, a throat region and  
5 an exit nozzle;



6 said inlet nozzle having a first diameter adapted to receive a carrier fluid,  
7 and having a first pressure and a first temperature, said carrier fluid  
8 comprising a process compatible gas selected from the group consisting  
9 of O<sub>2</sub>, N<sub>2</sub>, and He;

10 said throat region, having a first and second end, connected to said inlet  
11 nozzle at said first end, said throat region having a second diameter less  
12 than said first diameter, and adapted to receive said carrier fluid from  
13 said inlet nozzle, said throat region having a second pressure and a  
14 second temperature and having a first and a second aperture adjacent to  
15 said first and second ends for injecting, respectively, a first and a second  
16 chemical vapor deposition dopants into said throat region to allow for  
17 atomization of said first and second chemical vapor deposition dopants  
18 by said carrier fluid and mixing of said atomized first and second  
19 chemical vapor deposition dopants with said carrier fluid; and,

20 said exit nozzle, having an exit pressure, connected to said throat region at  
21 said second end for receiving said atomized first and second chemical  
22 vapor deposition dopants and said carrier fluid; and

23 wherein said chemical vapor deposition chamber is adapted to receive said  
24 mixture of atomized first and second chemical vapor deposition dopants with  
25 said carrier fluid from said exit nozzle of said cavity.

1 | 29. (New) The apparatus of claim 28 wherein said exit nozzle has an exit  
2 | pressure lower than said second pressure and a third temperature, said exit  
3 | nozzle having a third diameter greater than said second diameter to allow for a

4 substantial decrease in pressure from said first pressure to said exit pressure,  
5 and configured to introduce said atomized first and second chemical vapor  
6 deposition dopants and said carrier fluid in the chemical vapor deposition  
7 chamber.

30. (New) The apparatus of claim 28 wherein said exit nozzle has said  
second pressure and said second temperature, such that said exit nozzle is an  
extension of said throat region consisting of the same dimensions as said throat  
region, said exit region being configured to introduce said atomized first and  
second chemical vapor deposition dopants and said carrier fluid in said  
chemical vapor deposition chamber.

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**In the Drawings**

Fig. 2 has been amended. A clean drawing of Fig. 2 is enclosed along with a marked up sheet showing the deletions highlighted in yellow and encircled in red.